CHAPTER IV

MOVING FORWARD: MATERIALS MANAGEMENT AND RESOURCE CONSERVATION

In this chapter...

OVERVIEW

At the turn of the new century, the United States completed two decades of managing wastes under RCRA. In the past 20 years, waste management practices have improved tremendously. This success, while impressive, must be viewed in light of remaining challenges. Solid and hazardous waste continues to be generated in large amounts. Year-to-year increases in recycling rates have slowed.

After two decades of experience with the current system, it is time to look forward and to examine how the program should evolve to meet the challenges and opportunities of the new century. In order to do so, it is essential to redefine the specific goals that will guide a future program and to develop new tools and strategies to achieve those goals.

TRENDS AND FUTURE DIRECTIONS

In developing a vision for the future of RCRA, it is necessary to make certain projections and assumptions as to the "landscape" (i.e., the economic, technological, and societal setting) in which the program might operate in the future. Looking to the year 2020, these projections can be organized into six broad categories: resources, health and risk, industry, information, globalization, and society and government.

Resources

Worldwide demand for basic resources (e.g., fresh water, minerals, energy sources, fibers, and agricultural land) will continue to increase as the world's population grows and as the global economy expands. Technological advancements will also affect the availability of resources and the way resources are used. For example, technological innovations could improve the efficiency with which resources are used or reduce the use of fossil fuels.

Health and Risk

The number of synthetic chemicals that are produced, used, and eventually discarded will continue to dramatically increase. While many of these products may represent important improvements, some of the new substances may have the potential to cause harm to human health and the environment, and knowledge of the risks posed by the new chemicals may not keep pace with their development. However, the effects of existing chemicals may become better understood as scientific advances are made.

Industry

Over the next few decades as resources become scarce, the economic value of certain basic materials and resources may increase – thus, market forces will create greater incentives for industry to use material more efficiently and to be less wasteful. Technologies for the reuse and recycling of material will likely increase over time, thus lowering the rate at which such materials are wasted.

Although industry may become more efficient, some industrial residuals will continue to have very low potential for productive reuse or recycling and will need to be managed as wastes. The existence of wastes and the need to manage them safely should promote technological progress that will broaden and improve treatment and disposal options.

Information

Over the next few decades, the amount of available information and the ability to share it will dramatically increase. This enhanced flow of information will result in a greater awareness and knowledge of environmental issues and concerns on the part of individuals, businesses, and other institutions. For example, more efficient information exchange should stimulate the business of buying and trading recyclable materials.

Globalization

The trend toward an increasingly globalized economic system and the rising worldwide demand for material goods will result in the need for more capacity in manufacturing and extracting industries, which are likely to become more globally dispersed. Furthermore, potentially hazardous wastes can be easily moved between those countries that have strict environmental protections and those that do not. Therefore, environmental protections will need to be more internationalized in order to address these global issues.

Society and Government

By the year 2020, it is expected that developments in information and telecommunications technologies will have created much stronger links between individuals and the governmental institutions that serve them. As a result, individuals may be empowered to more directly and effectively influence governmental decisions on environmental issues. These issues may focus on resources and local, regional, or global environmental problems that have not been adequately addressed. Moreover, the need to live in a relatively clean environment will continue to gain currency in this country as a basic civil and human right through both laws and societal attitudes. This trend will likely influence the future siting and operation of manufacturing and waste management facilities.

GOALS

With two decades of experience, it makes sense at this time to examine how waste and materials management should evolve to meet future challenges and opportunities. Based on past experience and the projections of future circumstances, EPA developed three goals for a future waste management system:

- Reduce waste and increase the efficient and sustainable use of resources
- Prevent exposures to humans and ecosystems from the use of hazardous chemicals
- Manage wastes and clean up chemical releases in a safe, environmentally sound manner.

■ Reduce Waste and Increase the Efficient and Sustainable Use of Resources

Over the next few decades, the human population will continue to grow, as will the material aspirations of large numbers of people in many parts of the world. Many believe that the resulting increased demand for resources cannot be sustained without the wide-scale degradation of the global environment unless those resources are used with greater efficiency. Therefore, this goal is centered on two objectives that call for using resources more efficiently.

The first objective is to reduce the overall volume of waste that needs to be disposed of in this country, regardless of the source or composition. This includes all wastes–whether it is municipal solid waste, industrial residues, or hazardous waste that is produced by individuals or industry.

The second objective is to reduce the amount of material used to make products or to perform services. Extending the useful life of products would help achieve this objective, as would increased materials reuse and recycling. A key aspect of achieving this objective will be to design products and manufacturing processes with the environment in mind. The design process would seek to minimize the use of raw materials and to extend product lifespans to maximize the ease and frequency of subsequent product disassembly, recycling, and/or transformation for reuse. Such continuous utilization processes (from cradle to cradle) are critical both to reducing waste and increasing the sustainable use of resources.

Creating a system truly oriented towards the efficient use of resources could also require fundamental changes in the waste versus non-waste regulatory construct embedded in the current RCRA system, allowing materials now considered wastes to be seen, whenever possible, as commodities with potential uses.

The most effective means to fulfill these objectives are likely to be those that use economic incentives to promote more efficient resource use and reduce waste generation. In addition, technological innovations and informational tools, such as investments in public education to enhance awareness of resource use, could play an important role. Regulatory mechanisms that focus on resource use and reuse will most likely be necessary as well.

■ Prevent Exposures to Humans and Ecosystems from the Use of Hazardous Chemicals

Hazardous chemicals will still be features of our everyday lives. While some of these chemicals have resulted in significant benefits for society, exposures to materials that contain hazardous chemicals can present risks to individuals and to the environment. These risks can occur at any point in a chemical's life cycle, regardless of whether the chemical is considered a product, raw material, or waste. Therefore, a truly integrated management system will need to appropriately control risks from: chemicals as they are produced, transported, and used in product manufacture; the use and reuse of those products; and unwanted harmful properties of those products when they become waste.

Currently, managing risks from potentially harmful chemicals in the United States is accomplished through a network of federal, state, and local regulatory controls, voluntary industry standards, liability incentives, public education efforts, and emergency response services. In many respects, this current system works reasonably well. However, there are inherent gaps and inconsistencies

regarding which chemicals and which types of exposures are regulated, under what circumstances, and what types of risk mitigation measures are employed. A more coherent and consistent system for identifying, reducing, and controlling chemical risks could benefit human health and the environment and could be equally advantageous to industry.

More information regarding the impacts of chemicals on human health and the environment needs to be gathered so that consumers can make informed purchasing decisions and create market incentives to manufacture lower-risk products. Economic initiatives might be useful in furthering this goal, such as making it more costly to use high-risk chemicals. Regulatory controls could also reduce the use of dangerous materials and may have more favorable outcomes if they are performance-based.

■ Manage Wastes and Clean Up Chemical Releases in a Safe, Environmentally Sound Manner

A broader waste prevention and materials management system will need to address at what point a material is considered a waste and whether the material would not be classified as a waste until the point at which it is clearly destined for disposal. Under an integrated waste and material management system, the current "cradle-to-grave" approach to waste management would be supplanted by a program under which a material that is now considered to be a waste will instead be presumed to be a valuable material until its useful life is expended, resulting in a "retirement-to-grave" rather than a "cradle-to-grave" system.

Under an integrated materials management system, all hazardous materials would be subject to essentially the same controls and incentives. Thus, the concept of hazardous waste management will be reduced from the current RCRA program to controls over the transportation, landfill design, operation and monitoring, and any required treatment of wastes prior to disposal.

By the year 2020, most of the existing contamination at RCRA-regulated hazardous waste facilities will hopefully be cleaned up, but some long-term remediation work may still be ongoing. Furthermore, preventing future releases of contamination to ground water and to other environmental media will remain key objectives. Opportunities may also remain to further revitalize idled or under-used properties, currently referred to as brownfields, and to increase the conservation of open spaces and greenfields.

Regulations will help to accomplish this goal by requiring the safe management and disposal of hazardous waste and by ensuring that future releases are remediated. However, other tools may diminish the need for regulatory controls. Fiscal policies, such as tax credits for waste reduction or a tax on waste generation, can promote waste minimization. Additionally, public disclosure of facilities' hazardous waste management practices could generate pressure on companies to manage wastes safely.

WHAT WORK IS NEEDED

Achieving these goals for a future waste management system will require action by all. EPA and states must act to maintain the protectiveness of basic waste management programs and must focus new efforts where they can achieve the greatest and most measurable improvements. EPA also needs to develop collaborative relationships with industry, academia, environmental communities, and individual consumers.

In 2002, EPA published *Beyond RCRA: Prospects for Waste and Materials Management in the Year 2020* (2020 Vision). In the 2020 Vision, EPA and state environmental officials initiated discussion on the direction of waste and materials management in the United States over the next twenty years. The 2020 Vision examined trends and future directions in materials use and technology use. It identified three overarching goals:

- Reduce waste and increase the efficient and sustainable use of resources
- Prevent exposures to humans and ecosystems from the use of hazardous chemicals
- Manage wastes and clean up chemical releases

in a safe, environmentally sound manner.

The 2020 Vision presented an opportunity to define new, more collaborative roles for government and to inspire and facilitate change. EPA also identified specific actions that government could take to achieve the 2020 Vision.

Building on the initial 2020 Vision, in January 2007, the directors of EPA's waste and chemical programs convened the present 2020 Vision Workgroup to develop a roadmap to accelerate the move toward sustainable materials management. In June 2009, EPA published *Sustainable Materials Management: The Road Ahead*, a product of the EPA-State 2020 Vision Workgroup. This report suggests a roadmap for the future based on materials management—fulfilling human needs and prospering, while using fewer materials, reducing toxics and recovering more of the materials used. EPA and the states are already doing considerable work along the lines recommended in the report—but taken as a whole, this strategy would be an important shift of emphasis from waste management to materials management. Shifting to a materials management approach will refocus the way our economy uses and manages materials and products.

The 2020 Vision and *Sustainable Materials Management: The Road Ahead* are available at www.epa.gov/epawaste/inforesources/pubs/vision.htm.

Furthermore, EPA is developing a Pollution Prevention (P2) Vision to provide strategic focus and identify current P2 priorities. The P2 Vision frames three broad strategic categories:

- Greening supply and demand
- P2 integration
- Delivery of P2 services.

THE RESOURCE CONSERVATION CHALLENGE

EPA is now charting its direction, building on the 2020 and P2 Visions. In late 2002, bringing new focus to the resource conservation aspect of RCRA, EPA launched the **Resource Conservation Challenge** (RCC).

The RCC is a way to implement the 2020 and P2 Visions and achieve a future where waste is a concept of the past. The RCC's goals are to reduce what comes into the waste management cycle, using pollution prevention, waste minimization, source reduction, and manufacturing process and/or product design changes. Moving to an efficient and safe materials flow is central to the RCC. EPA acknowledges industry's progress and willingness to move forward with this shift in focus toward resource conservation. EPA also acknowledges that some waste disposal will always continue to be a necessary, yet less desirable, option.

The Agency Strategic Plan and the 2020 and P2 Visions call for a transformation of the nation's current waste-handling system to more of a materials management system. The RCC – in partnership with the states – aims to achieve this transformation. EPA Headquarters and all ten regional offices are jointly engaged in the RCC.

The RCC is a major national effort to find flexible, yet protective, ways to conserve our national resources through waste reduction and energy recovery. The goals of the RCC are to prevent pollution and promote recycling and reuse of materials; reduce the use of priority chemicals at all product life-cycle stages; and conserve energy and materials.

To achieve these goals, EPA established collaborative partnership programs, as well as education and outreach programs, to encourage American individuals, institutions, and businesses to make smarter purchasing and disposal decisions. Ultimately, EPA is moving from a cradle-to-grave approach to waste management, where the cradle is the generation of waste and the grave is the ultimate safe disposal of waste, to a cradle-to-cradle approach through the RCC. This system of efficient materials

management identifies waste materials that can be safely recycled and reused as material inputs and examines inputs to processes that create waste in an effort to eliminate inefficiencies and toxic materials altogether.

RCC NATIONAL PRIORITY AREAS

The RCC has made a lot of progress towards its goals of increasing recycling, reducing waste and toxic chemical use, and conserving energy. However, there is still much work to be done. EPA initiated integrated planning to determine the future direction of the RCC. The following sections describe the RCC Strategic Plan, the national priority areas of the RCC, and the action plans for the priority areas.

■ RCC Strategic Plan

EPA developed a strategic plan that describes the RCC's direction, focus, vision, and broad goals for the next five to ten years. To complement the RCC Strategic Plan, EPA identified four key areas for national focus, which are described in the following section. EPA developed a national action plan for results in each of these four areas that describes specific goals and actions needed to move toward the overall goals of the RCC. The action plans are described in more detail below in the next section.

The RCC Strategic Plan, with its focus on waste and toxics, aligns internal EPA and state projects, goals, and strategies. In the short term, the RCC will focus primarily on solid waste and pollution prevention. Ultimately, the RCC challenges us to put resource conservation and recovery into the design and manufacturing of products or recycling options and purchasing decisions.

To establish a strong foundation for the RCC, the program will harmonize the work of ORCR and the Office of Prevention, Pesticides, and Toxic Substances (OPPTS) to attain waste and toxic substance reduction goals.

The RCC Strategic Plan is the key to establishing the path along which the RCC will continue to grow. The RCC will grow from a collection of individual, ambitious projects and achievements into a cohesive set of robust programs. These programs identify opportunities for, and ways to achieve, pollution prevention, recycling, reuse, toxics reduction, and energy and materials conservation. The strategy is dynamic, gaining greater specificity as the RCC identifies areas of national focus, further identifies goals and measures specific to different areas, and develops specific action plans. The goals of the RCC Strategy are to:

- Coordinate ORCR and OPPTS waste and toxics reduction programs and projects
- Better align EPA and state focus to attain effective materials management
- Build on current partnerships and attract new partners
- Describe the measures used to track success for future projects.

The RCC Strategic Plan is available at www.epa.gov/rcc.

■ Selection of National Priority Areas

After completing the strategic plan development, EPA focused on the identification of national priority areas and the development of accompanying action plans. This is a critical step because all regions and EPA Headquarters offices are expected to commit resources to achieving the stated objectives and targets for each area. Only by coordinating efforts across the country will EPA begin to move forward in achieving effective materials management. To accomplish this goal, ORCR held a series of meetings with OPPTS and regional waste management and P2/Toxics staff to discuss possible areas of national focus. At the conclusion of these meetings, four national priority areas were selected:

- Achieving the national 35 percent recycling rate for municipal solid waste (MSW)
- Reuse and recycling of industrial materials
- Priority and toxic chemical reductions
- Green initiatives – electronics.

These areas were initially identified as priorities

in the RCC 2005 Action Plan. These priority areas may be amended or changed as necessary to achieve the ultimate goals of the RCC.

In selecting these areas, EPA considered several factors:

- Current and future Government Performance and Results Act (GPRA) goals in the EPA Strategic Plan
- Areas of significant partnerships with government and non-government stakeholders
- Existing coordinated efforts by EPA regions and states
- Areas of high potential positive environmental impact or benefits
- Current and emerging large-quantity waste streams.

From these criteria and based on current resources, EPA determined that the four areas would be the national focus of the RCC. These areas do not define the sum of all activities going on within the RCC, as much of the important on-going work being accomplished by the EPA and the states will continue. However, the above four areas will be the RCC's national core priorities. In each of the national priority areas, measurement is a major focus, allowing the Agency to demonstrate progress resulting from its investment of resources. The following sections discuss the development of action plans for each of the priority areas in detail.

■ Action Plans

Once the national priority areas were identified, participants established workgroups to draft an action plan for each area. Each workgroup consisted of a small number of headquarters and regional RCRA and OPPTS program experts with a focus on pollution prevention, risk reduction, and resource conservation. For each plan, the groups were asked to identify the scope or breadth of their area, key objectives to be achieved, measurable environmental targets or outcomes, and the means and strategies that would lead to success.

From these drafts, EPA gathered input from a broad group of RCRA and P2/Toxics managers and staff from EPA and states. This input brought a national perspective to the areas and helped shape the action plans for successful implementation. The action plans identify specific on-going and new activities, and associated means, benefits, measures, and outcomes, and outlines the implementation priorities and responsibilities of participating EPA offices and key stakeholders. These plans are consolidated in the RCC 2005 Action Plan. This document is a living document that will be amended as the RCC reaches key milestones and identifies new objectives and targets that will help to achieve the ultimate RCC goals.

The RCC 2005 Action Plan is available at www.epa.gov/rcc.

■ Municipal Solid Waste Recycling

Municipal solid waste (MSW) recycling is the first national focus area of the RCC. The objective is to increase recycling to attain EPA's GPRA goal for the nation to recycle at least 35 percent of MSW by 2008. The municipal solid waste recycling initiative targets specific components of MSW based on generation and recovery rates and the potential for increased recovery. Currently, this initiative encompasses the following MSW components: paper and paperboard, organic waste, and packaging/containers.

In the future, EPA will decide whether to target additional MSW components or to increase goals and targets for the three current target components.

EPA has decided to focus municipal solid waste recycling initiatives on a select group of business sectors. These sectors were selected for inclusion because they generate more than one of the targeted components, present opportunities for recycling, and have the availability of established partnerships or viable potential partners. Based on these criteria, EPA selected the following focus sectors:

- Schools
- Office buildings
- Landscapers

- Food service industry
- Hospitality industry
- Recycling on the go venues (shopping centers, ball parks, special events, convenience stores, health clubs, recreation centers, and parks)
- Federal government facilities.

More broadly, EPA will work at the national and regional levels to enhance public commitment to recycling, increase public access to recycling opportunities, and engage national stakeholders in the national recycling goal. In doing so, the Agency will work closely with states and local governments and target efforts strategically toward the MSW components identified and toward the commercial and government sectors that provide the greatest opportunities for success.

EPA will measure results towards the municipal solid waste recycling priority area using the measurement methodology from EPA's Waste Characterization Report. The report has been the primary source of municipal solid waste generation and recycling rates, although EPA will also use data from the Hospitals for a Healthy Environment (H2E) program, Performance Track data, and Supplemental Environmental Projects (SEPs). In addition, EPA will analyze and compare state data, as well as other measurement methodologies and data sources, such as "BioCycle", to better understand trends.

■ Industrial Materials Recycling (IMR)

The vision of IMR is a future where industries generate less waste and recycle residual materials to beneficial uses through environmentally sound practices. Currently, over 7.6 billion tons of industrial waste are generated each year. The objective is to achieve the economic and environmental benefits of using the by-products of industrial processes as inputs to new products, thereby extending the useful life of landfills, conserving virgin materials, and reducing energy use and associated greenhouse gas emissions.

While other materials will be considered in the future, the following materials have been identified for immediate focus:

- Coal combustion products (CCPs), including fly ash, bottom ash, flue gas desulfurization (FGD) gypsum and wet and dry scrubber materials, boiler slag, and fluidized bed combustion (FBC) ash
- "Green" foundry sand, a molding material byproduct from the production of ferrous and nonferrous metal castings
- Construction and demolition debris (C&D debris), including materials generated from the construction, demolition, and renovation of buildings and infrastructure such as roads, bridges and runways, and land clearing.

EPA is pursuing four broad strategies in increasing the beneficial reuse of these materials: analyzing and characterizing the target materials; identifying environmentally safe and beneficial practices; identifying incentives and barriers to beneficial reuse; and increasing outreach and education on the benefits of source reduction and recycling industrial materials. To achieve the goals of this priority area, EPA is forming partnerships with industries, states, academia, and other federal agencies.

■ Priority and Toxic Chemical Reductions

The use of chemicals in industrialized nations has brought about tremendous advancements in technology and improved virtually every aspect of society. Although useful, certain chemicals in use today are highly toxic, do not break down when released into the environment, and can be dangerous even in small quantities. EPA has identified thirty-one priority chemicals that meet these criteria. While this list represents the EPA's priority for reduction, it is certainly not exhaustive and other candidates for national attention are likely to be identified. Considerations in selecting other toxic chemicals of national concern may include: increased or widespread use, significant production volumes, availability of safer or greener alternatives, presence in common products that contribute to the wastestreams, frequent findings that the substance has created environmental cleanup problems, interest to more than one EPA program, existence of

available or likely solutions, and other factors such as presence in humans or the environment indicating potential significant exposure, release, or risk.

EPA plans to eliminate or reduce priority chemicals and other chemicals of national concern from commercial products, wastestreams, and industrial releases through pollution prevention, waste minimization, and recycling/reuse.

These chemical reduction goals have resulted in five basic operating principles:

- Substituting priority and other toxic chemicals with safer alternatives whenever possible
- Minimizing the amount of toxics used whenever substitution is not possible
- Maximizing recycling whenever minimization or substitution is not possible
- Emphasizing cradle-to-cradle chemical management
- Minimizing exposures to toxics and the volume and toxicity of waste through better product and manufacturing process design.

EPA will establish a process with relevant manufacturers, processors, users, and other stakeholders to identify, implement, and realize toxic chemical reduction opportunities.

■ Green Initiatives - Electronics

In 2009, 438 million new electronic products were sold; 5 million short tons of electronic products were in storage; 2.37 million short tons of electronic products were ready for end-of-life management; and 25 percent of these tons were collected for recycling. The electronics priority area will work to reduce the potential adverse effects of these discarded products by applying a life cycle approach to the problem. The RCC addresses environmental concerns along the entire life cycle of electronics, including design, operation, reuse, recycling, and disposal of equipment. The electronics initiative will focus initially on computers (PCs), televisions, and cell phones, but may add other electronic wastes in the future.

The RCC aims to meet three electronic waste objectives:

- Foster environmentally conscious design and manufacturing, including reducing or eliminating higher-risk materials (e.g., priority and toxic chemicals of national concern) in electronics products at the source
- Increase purchasing and use of more environmentally sustainable electronics
- Increase safe, environmentally sound reuse and recycling of used electronics.

These green initiatives depend on partnership programs, such as Design for the Environment, the Federal Electronics Challenge (FEC), and Plug-in to eCycling, for success. In addition, EPA plans to broaden the utilization of the Electronics Product Environmental Assessment Tool (EPAT), an environmental procurement tool designed to help institutional purchasers in the public and private sectors evaluate, compare, and select desktop computers, laptops, and monitors based on environmental attributes.

■ RCC Relationship to GPRA Goals and EPA Strategic Plan

The 1993 Government Performance and Results Act (GPRA) holds federal agencies accountable for using resources wisely and achieving measurable program results. GPRA requires agencies to develop goals and plans for what they intend to accomplish, measure how well they are doing, make appropriate decisions based on the information they have gathered, and communicate information about their performance to Congress and to the public.

GPRA requires agencies to develop a five-year Strategic Plan, which includes a mission statement and sets out long-term goals and objectives; Annual Performance Plans, which provide annual performance commitments toward achieving the goals and objectives presented in the Strategic Plan; and Annual Performance Reports, which evaluate an agency's progress toward achieving performance commitments.

GPRA requirements – a long-range Strategic

Plan, Annual Performance Plans, and Annual Performance Reports – forge links among several activities:

- Planning, to achieve goals and objectives
- Budgeting, to ensure that resources are available to carry out plans
- Measuring, to assess progress and link resources actually used to results achieved
- Reporting, to present progress achieved and impacts on future efforts.

To comply with GPRA requirements and further enable the Agency to manage for results, EPA has built a framework that aligns planning, budgeting, and accountability in an integrated system. EPA continues to look for ways to improve planning and priority-setting – both in terms of annual planning and budgeting and longer-range strategic planning.

EPA's 2006 Strategic Plan serves as the road map for the next five years by establishing five long-term Agency goals. It also helps to establish annual goals, measure progress towards achieving those goals, and recognize where approaches or directions need to be adjusted to achieve better results. Finally, it will provide a basis from which EPA's managers can focus on the environmental issues with the highest priority and ensure effective use of taxpayer dollars.

The Strategic Plan is built around five goals, centered on the themes of air and global climate change, water, land, communities and ecosystems, and compliance and environmental stewardship. These themes reflect EPA's mission, "To protect human health and the natural environment."

In selecting the National Priorities for the RCC, EPA considered current and future GPRA goals in the Strategic Plan. The RCC's three goals are drawn from the EPA's overall strategic goals and direction. Specific goals and strategies have been identified in the RCC action plans to support the goals and commitments of EPA's Strategic Plan.

The RCC is currently a part of both Goal 3 and Goal 5 of the Agency goals. Goal 3 relates to land preservation and restoration, and Goal 5 relates to compliance and environmental stewardship. Within the RCC, measurement is a key element, with the objective of demonstrating progress on both GPRA goals. The focus of measurement is environmental outcomes, rather than procedural or administrative outputs. The RCC is working on projects that also support EPA Goals 2 and 4. Goal 2 promotes clean and safe water, and Goal 4 addresses healthy communities and ecosystems. During each cycle of the Agency's Annual Performance Plan, the RCC will add specific targets and measures that support the goals established by EPA's Strategic Plan.

COLLABORATIVE PARTNERSHIP PROGRAMS

EPA, both Headquarters and Regional Offices, is relying on collaborative partnerships and projects to meet the goals of the Resource Conservation Challenge. EPA works collaboratively with members of industry, trade associations, universities, public interest groups, tribes, and state, local, and federal agencies to increase recycling, reduce the use of toxic chemicals, and eliminate waste. These partnerships are designed to provide smarter, faster, and acceptable solutions that provide measurable progress in safeguarding our environment.

EPA is striving for environmentally sound solutions that improve public health or the environment and have measurable results. The most desirable solutions will likely be flexible, non-regulatory, ambitious, sustainable, and approached on a life cycle basis. Solutions that prevent the creation of pollutants and waste, and produce durable, recyclable, and less hazardous goods are preferred.

EPA and partners collaborate to identify and pursue the necessary tools, drivers, and incentives to produce the desired change. Potential barriers are identified and environmentally sound remedies proposed. Working together, EPA and partners define how success is to be determined and agree on an overall measurable environmental objective, sub-objectives, and targets.

A short description for each of the existing formal partnerships is provided in the following

sections. Additional information on any of the partnership programs below can be found at www.epa.gov/epawaste/partnerships.

■ The Plug-In to eCycling Program

In the past decade, our growing reliance on electronics has given rise to a new environmental challenge – the safe and resource-wise management of electronic waste. Approximately 300,000 units of consumer electronics are disposed of annually. The Plug-In To eCycling Partnership Programs aims to increase the safe recycling of used electronic products by providing recognition and other incentives to partners. Plug-In To eCycling partners include manufacturers, retailers, government agencies, or nonprofit businesses, all of which participate in the collection, reuse, recycling, or refurbishing of old electronic equipment. Initiatives developed under the Plug-In To eCycling Program are not exclusive to partners; EPA encourages everyone who handles used electronic equipment to maximize reuse, refurbishment, and recycling activities. EPA also encourages other organizations to recycle electronics by participating in the Federal Electronics Challenge, a voluntary partnership program that encourages federal agencies and facilities to purchase greener electronic products, reduce impacts of electronic products during use, and manage obsolete electronics in an environmentally safe way.

Additional information on the Plug-In to eCycling Partnership Program can be found at www.epa.gov/plugin.

■ Product Stewardship Partnerships

Product Stewardship Partnerships involve efforts to reduce the life-cycle impacts of products through product stewardship partnerships with manufacturers, retailers, other governments, and non-government organizations. Product stewardship is a product-centered approach to environmental protection. Also known as extended product responsibility, product stewardship calls on those in the product life cycle, including manufacturers, retailers, users, and disposers to share the responsibility for reducing the environmental impacts of products.

Product stewardship recognizes that product manufacturers can and must take on new responsibilities to reduce the environmental impact of their products. Without serious producer commitment, significant progress toward improved resource conservation and a sustainable economy cannot be made. However, real change cannot always be achieved by producers acting alone; retailers, consumers, and the existing waste management infrastructure must also pitch in for product stewardship to be successful.

Additional information on the Product Stewardship Partnership Program can be found at www.epa.gov/epawaste/partnerships/stewardship.

■ WasteWise

Many companies, institutions, and governments have demonstrated that they can save money by reducing waste and recycling material that would otherwise be disposed. The WasteWise Partnership Program is designed to assist companies, states, local governments, Native American tribes, and other institutions in developing cost-effective practices to reduce municipal solid waste. These partners set and achieve goals within three areas: waste prevention, recycling collection, and buying or manufacturing recycled products. Participation as a WasteWise partner offers several advantages including technical assistance, publications, recognition, and program updates. Successful waste reduction efforts are highlighted in EPA documents, magazines, and trade publications. Participating organizations can also use the WasteWise logo to promote their participation, and each year the top-reporting partners are honored at a national awards ceremony. These benefits, along with the direct financial savings that result from waste prevention and recycling activities, are

helping to improve waste management and resource efficiency. Since its inception in 1994, WasteWise has grown to include more than 2,700 corporations, government agencies, universities, hospitals, and other organizations committed to cutting costs and conserving natural resources through solid waste reduction. WasteWise partners have reported more than 120 million tons of waste reduced and made significant achievements reducing their impact on global climate change. Additional information on the WasteWise program is found at www.epa.gov/wastewise.

■ Education and Outreach Programs

EPA is not focusing only on industry, but is challenging everyone to improve their waste management practices, and to accept responsibility for improving our environment. In order to accomplish this goal, everyone needs to change practices and processes. Businesses, consumers, and governments must work together to make changes across the whole supply chain to include recycled materials and better product designs and to make products easier to reuse and recycle. Manufacturers can make products less toxic and more recyclable; however, those products need to be purchased by consumers. Finally, individuals, businesses, and agencies need to change their buying and disposal habits.

EPA provides general resources through the RCC for all citizens to learn how to reduce, reuse, and recycle materials and how to get involved and make a difference in their community. The RCC also provides a forum for sharing information and educating partners on various innovative technologies and methods for efficient materials management.

SUMMARY

It is certain that in the future waste and materials management will be very different. EPA is leading the nation in moving toward that future now by:

- Reducing waste, increasing recycling, and increasing the efficient and sustainable use of resources
- Preventing exposures to humans and ecosystems from the use of hazardous chemicals, and
- Managing wastes and cleaning up chemical releases in a safe, environmentally sound manner.

Sustainability is a critical environmental, economic, and quality of life issue that America and Americans will need to confront over the next decades. Since the U.S. is by far the world's largest consumer of goods and services, it has the responsibility to act with serious purpose to use resources more efficiently, and to work toward a more sustainable national and global economy. Developing new approaches for conserving resources, reducing the amount of toxics in the environment, and managing wastes properly can, and should be, an important part of making a more sustainable world. Promoting resource conservation along with economic growth will require a wide range of innovative tools that are well beyond the current scope of RCRA.

EPA helped develop and implement new initiatives and programs that aid industry, businesses, states, local governments, and communities in implementing effective materials management programs. The RCC focuses on the environmental and economic benefits of source reduction and recycling through collaborative partnership programs. Formal programs include:

- The Plug-In to eCycling Program
- The Product Stewardship Program
- WasteWise

ADDITIONAL RESOURCES

Additional information about a future waste management system can be found at www.epa.gov/epawaste/inforesources/pubs/vision.htm. Additional information about the Resource Conservation Challenge can be found at www.epa.gov/rcc.